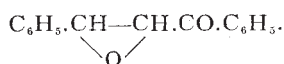


the Upper Albian is offered. The specific descriptions deal with sixty different forms belonging to twelve genera. Some of these represent new, indeterminate, or doubtful species; but the genus to which *A. inflatus* itself belongs includes 50 per cent. of the total number of specimens. An analysis shows that half the number represent local types, some also occurring in the Albian of North Africa; but all the types common with Madagascar and India also occur in the European Gault—that is to say, what intermixture of Indian or American elements there is must have taken place *via* Thetys. The Ammonites do not include a single Cenomanian form. Some new facts of importance obtained from the study of various unworked collections in the British Museum from Angola, Nigeria, South and East Africa, and other localities are incorporated in this paper.

PARIS.

Academy of Sciences, November 29.—**M. Henri Deslandres** in the chair.—**H. Le Chatelier**: The phase rule. Some recent criticisms of the phase rule are based on misconceptions. A summary of Gibbs's demonstration is given and some particular cases are examined in detail.—**C. E. Guillaume**: Cause of the instability of nickel-steels: its elimination (see p. 545).—**C. Sauvageau**: New observations on *Ectocarpus padinae*. The megaspores of this parasite on *Padina pavonia* can live and reproduce outside the plant acting as host; an alternation of generations between a summer parasitic plant and a winter plant of independent life is not improbable, although as yet unproved.—**M. J. L. Breton** was elected a free Academician in succession to the late M. Ad. Carnot.—**R. Birkeland**: The solution of the general equation of the fifth degree.—**B. Gambier**: The imaginary application of two real or imaginary surfaces. The corresponding real cyclic systems or triply orthogonal systems.—**G. Reboul**: A new property of substances feebly conducting electricity. If a photographic plate is covered with a sheet of black paper and placed in a dark box, and if two insulated electrodes with a potential difference of 1000 volts are brought into contact with the paper for a period of twenty-four to forty-eight hours, on developing the plate the fibres of the paper are found to be reproduced, and the equipotential lines also appear. If the paper is divided, or replaced by a sheet of metal or of mica, the effect is *nil* or confined to the electrodes. The effect can be modified by altering the conductivity of the sheet of paper.—**S. Procopiu**: The electrical dichroism of smoke and the dichroism of diffraction gratings.—**S. Posternak**: The constitution of the paramolybdates.—**R. Cornubert**: The spectrochemical study of the α -allyl and α -allylmethylcyclohexanones. The results are in agreement with the theory of Auwers on the influence of the double groups on the value of the molecular refraction.—**C. Dufraisse**: Remarks on the so-called dibenzoylmethane of J. Wislicenus. The author considers that the substance regarded by J. Wislicenus as dibenzoylmethane is, in reality, an ethylene oxide of the constitution



—**P. Landrieu**: Researches on the acid and polyacid salts of monobasic acids: the potassium and lithium dibenzoates.—**Mlle. Augusta Hure**: The Lutecian limestone in the Yonne.—**E. Passemard**: The persistence of *Rhinoceros Mercki* in an Upper Mousterian deposit in the Basses-Pyrénées.—**A. Guilliermond**: New researches on the vacuole apparatus in plants. The vacuolar system in the embryonic cells of the higher plants frequently presents forms resembling

mitochondria. These pseudo-mitochondrial forms do not show the histo-chemical characters of mitochondria, and should be definitely separated from the chondriome. The author considers the views of M. Dangeard with regard to the relation between these forms and the chondriome of the animal cell as erroneous.—**L. Daniel**: Researches on the grafting of Solanum.—**L. MacAuliffe** and **A. Marie**: The anthropometric study of 127 Spaniards.—**M. Baudouin**: The variations in the flattening of the tibia in infants and adults of the Neolithic races.—**A. Pézard**: Intrapuberal castration in cocks and the generalisation of the parabolic law of regression.—**F. Vlés** and **J. Bathellier**: The numerical laws of the pedal waves in the movements of Gasteropods.—**P. Wirtrebert**: The comparative value and the determinism of the principal signs of aneural myotomic contraction observed in the embryos of *Scylliorhinus canicula*.—**G. Truffaut** and **N. Bezssonoff**: The characters common to the β bacterium, symbiotic with *Clostridium pastorianum* and *B. aliphaticum non liquefaciens*. The development of these two bacteria suggests that they belong to similar races, possibly to the same race.—**G. Odin**: A new method for the diagnosis of syphilis. Serum from the blood of the subject is mixed with physiological serum and a small proportion of sodium fluoride. The serum thus produced when injected into the patient increases all the syphilitic symptoms and makes a certain diagnosis. The method has been applied to more than a hundred cases without a single failure.

Books Received.

The Backward Peoples and our Relations with Them. By Sir Harry Johnston. (The World of Today.) Pp. 64. (London: Oxford University Press.) 2s. 6d.

The Life of Horace Benedict de Saussure. By D. W. Freshfield. Pp. xii+479. (London: E. Arnold.) 25s. net.

Home Mechanics Workshop Companion. By A. Jackson, jun. Pp. 222. (London: H. Frowde and Hodder and Stoughton.) 6s. net.

Home Soldering and Brazing. By R. F. Yates. Pp. 122. (London: H. Frowde and Hodder and Stoughton.) 4s. 6d. net.

Home Chemical Laboratory. By R. F. Yates. Pp. 127. (London: H. Frowde and Hodder and Stoughton.) 4s. 6d. net.

Soaring Flight: A Simple Mechanical Solution of the Problem. By Lt.-Col. R. de Villamil. Pp. 48. (London: C. Spon.) 1s. 6d. net.

Space and Time in Contemporary Physics. An Introduction to the Theory of Relativity and Gravitation. By Prof. M. Schlick. Translated by H. L. Brose. Pp. xi+89. (New York and London: Oxford University Press.) 6s. 6d. net.

The Geography of Plants. By Dr. M. E. Hardy. Pp. xii+327. (Oxford: Clarendon Press.) 7s. 6d. net.

Handbook of Spinning Tests for Cotton Growers. By Dr. W. L. Balls. Pp. 59. (London: Macmillan and Co., Ltd.) 3s. 6d. net.

Some Investigations in the Theory of Map Projections. By A. E. Young. Pp. viii+76. (London: Royal Geographical Society.) 6s. net.

Der Entropologische Gottesbeweis. By Dr. J. Schnippenkötter. Pp. 109. (Bonn: A. Marcus and E. Weber.) 15 marks.

Plane Algebraic Curves. By Prof. H. Hilton. Pp. xvi+388. (Oxford: Clarendon Press.) 28s. net.

Treatise on General and Industrial Organic

Chemistry. By Prof. E. Molinari. Translated from the third Italian edition by T. H. Pope. Part i. Pp. xv+456. (London: J. and A. Churchill.) 30s. net.

A Farmer's Handbook: A Manual for Students and Beginners. By R. C. Andrew. Pp. xvi+126+xliv plates. (London: G. Bell and Sons, Ltd.) 6s. net.

The World of Sound: Six Lectures delivered before a Juvenile Auditory at the Royal Institution, Christmas, 1919. By Sir W. Bragg. Pp. viii+196. (London: G. Bell and Sons, Ltd.) 6s. net.

Religion and the New Psychology: A Psycho-Analytic Study of Religion. By W. S. Swisher. Pp. xv+261. (London: G. Routledge and Sons, Ltd.) 10s. 6d. net.

Tables du Mouvement Képlérien. By Dr. M. F. Boquet. Première partie. Pp. vi+205. (Paris: A. Hermann et Fils.)

The Garden Doctor: Plants in Health and Disease. By F. J. Chittenden. Pp. x+154. (London: Country Life, Ltd.; New York: C. Scribner's Sons.) 7s. 6d. net.

Les Etoiles Simples. By Dr. F. Henroteau. Pp. xi+244. (Paris: O. Doin.) 10 francs.

In Search of the Soul and the Mechanism of Thought, Emotion, and Conduct. By Dr. B. Hollander. In 2 vols. Vol. i.: The History of Philosophy and Science from Ancient Times to the Present Day. Pp. x+516. Vol. ii.: The Origin of the Mental Capacities and Dispositions of Man. Pp. vii+361. (London: Kegan Paul and Co., Ltd.; New York: E. P. Dutton and Co.) 2l. 2s. net (two vols.).

Properties of Steam and Thermodynamic Theory of Turbines. By Prof. H. L. Callendar. Pp. xi+531. (London: E. Arnold.) 40s. net.

Early Science in Oxford. By R. T. Gunther. Part i.: Chemistry. Pp. vi+91. (Oxford: Clarendon Press.) 6s.

Application of Dyestuffs to Textiles, Paper, Leather, and other Materials. By Dr. J. M. Matthews. Pp. xvi+768. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 57s. 6d. net.

Zoomikrotechnik: Ein Wegweiser für Zoologen und Anatomen. By Prof. P. Mayer. Pp. vii+516. (Berlin: G. Borntraeger.) 64 marks.

Marine Engineering. By Engr.-Capt. A. E. Tompkins. Fifth edition, revised. Pp. xi+888. (London: Macmillan and Co., Ltd.) 36s. net.

Die Gestalten der normalen und abnormen Vogeleier analytisch bearbeitet. By Dr. A. Szielasko. Pp. v+119. (Berlin: W. Junk.)

Imperial Institute. Monographs on Mineral Resources, with Special Reference to the British Empire. Coal. By J. H. Ronaldson. Pp. ix+166. (London: J. Murray.) 6s. net.

Leicestershire. By G. N. Pingriff. Pp. xii+164. (Cambridge: At the University Press.) 4s. 6d. net.

Engineering for Land Drainage. By C. G. Elliott. Third edition, revised. Pp. xviii+363. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 13s. 6d. net.

A Text-book of Organic Chemistry. By Prof. A. F. Holleman. Edited by Dr. A. J. Walker. Fifth English edition, revised. Pp. xviii+642. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 18s. 6d. net.

Organic Medicinal Chemicals (Synthetic and Natural). By M. Barrowcliff and F. H. Carr. Pp. xiii+331. (London: Baillière, Tindall and Cox.) 15s. net.

Scurvy: Past and Present. By Prof. A. F. Hess. Pp. vii+279. (Philadelphia and London: J. B. Lippincott Co.) 18s. net.

Chemistry of Familiar Things. By S. S. Sadtler. Third edition, revised. Pp. xiii+322+xxiii plates. (Philadelphia and London: J. B. Lippincott Co.) 10s. 6d. net.

Laboratory Manual of Organic Chemistry. By Dr. H. L. Fisher. Pp. x+331. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 12s. 6d. net.

Agricultural Geology. By Dr. F. V. Emerson. Pp. xviii+319. (New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd.) 16s. 6d. net.

Lippincott's Quick Reference Book for Medicine and Surgery. By Dr. G. E. Rehberger. (Philadelphia and London: J. B. Lippincott Co.) 63s. net.

Diary of Societies.

WEDNESDAY, DECEMBER 29.

ANNUAL CONFERENCE OF EDUCATIONAL ASSOCIATIONS (at Bedford College for Women), at 3.—Rt. Hon. H. A. L. Fisher: Instinct and Education.

THURSDAY, DECEMBER 30.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. J. Arthur Thomson: The Haunts of Life: The School of the Shore (Juvenile Lectures).

ANNUAL CONFERENCE OF EDUCATIONAL ASSOCIATIONS (at University College, Gower Street), at 3.—Dr. A. F. Tredgold: Inheritance and Educability.—At 5.—Dr. L. R. Veitch Clark: Infant Mortality: Its Causes and Mitigation.

SATURDAY, JANUARY 1.

ANNUAL CONFERENCE OF EDUCATIONAL ASSOCIATIONS (at University College, Gower Street), at 10.30 a.m.—A Joint Conference on The Use of Psycho-analysis in Education.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. J. Arthur Thomson: The Haunts of Life: The Open Sea (Juvenile Lectures).

GILBERT WHITE FELLOWSHIP (at 6 Queen Square, W.C.1), at 3.—Lecture.

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